Claims

1. A method for the detection of a malignancy in a warm-blooded animal, wherein an activated oncogene or cancer-related gene is associated with the malignancy, comprising the steps of:

(a) isolating T cells from a warm-blooded animal;

(b) incubating the T cells with at least one protein expression product of an activated oncogene or cancer-related gene associated with the malignancy; and

(c) detecting the presence or absence of proliferation of the T cells, thereby determining the presence or absence of the malignancy.

2. The method of claim 1 wherein the protein expression product of an activated oncogene is a protein encoded by an oncogene selected from the group consisting of ras, src, abl, fgr, rel, yes, fes, net, mos, raf, erb B, erb A, fms, neu, ros, kit, sea, sis, myc, myb, fos, ski, jun and ets.

3. The method of claim 1 wherein the step of detecting comprises measuring the rate of DNA synthesis of the T cells.

4. A method for the detection of a malignancy in a warm-blooded animal, wherein an activated oncogene or cancer-related gene is associated with the malignancy, comprising the steps of:

(a) contacting a body fluid, suspected of containing antibodies specific for a protein expression product of an activated oncogene or cancer-related gene associated with the malignancy, with at least one protein expression product of an activated oncogene or cancer-related gene associated with the malignancy;

(b) incubating the body fluid under conditions and for a time sufficient to allow immunocomplexes to form; and

(c) detecting the presence or absence of one or more immunocomplexes formed between the protein expression product and antibodies in the body fluid specific for the protein expression product, thereby determining the presence or absence of the malignancy.

5. The method of claim 4 wherein the protein expression product of an activated oncogene is a protein encoded by an oncogene selected from the group consisting of ras, src, abl, fgr, rel, yes, fes, net, mos, raf, erb B, erb A, fms, neu, ros, kit, sea, sis, myc, myb, fos, ski, jun and ets.

6. The method of claim 4 wherein a reporter group is bound to a second antibody capable of binding to the antibodies, and wherein the step of detecting comprises (a) removing substantially any unbound antibody, (b) adding the second antibody, (c) removing substantially any unbound second antibody, and (d) detecting the presence or absence of the reporter group.

7. The method of claim 6 wherein the second antibody is an anti-human antibody.

8. The method of claim 6 wherein the reporter group is selected from the group consisting of radioisotopes, fluorophores, enzymes, luminescers, and dye particles.

9. The method of claim 4 wherein a reporter group is bound to a molecule capable of binding to the immunocomplexes, and wherein the step of detecting comprises (a) adding the molecule, (b) removing substantially any unbound molecule, and (c) detecting the presence or absence of the reporter group.

10. The method of claim 9 wherein the molecule capable of binding to the immunocomplexes is protein A.

11. The method of claim 9 wherein the reporter group is selected from the group consisting of radioisotopes, fluorophores, enzymes, luminescers, and dye particles.

12. The method of claim 4 wherein a reporter group is bound to the protein expression product, and wherein the step of detecting comprises removing substantially any unbound protein expression product and thereafter detecting the presence or absence of the reporter group.

13. The method of claim 12 wherein the reporter group is selected from the group consisting of radioisotopes, fluorophores, enzymes, luminescers, and dye particles.

14. A method for monitoring the effectiveness of cancer therapy in a warm-blooded animal with a malignancy, wherein an activated oncogene or cancer-related gene is associated with the malignancy, comprising the steps of:

(a) contacting a first body fluid sample, taken from the warm-blooded animal prior to initiation of therapy, with at least one protein expression product of an activated oncogene or cancer-related gene associated with the malignancy;

(b) incubating the body fluid under conditions and for a time sufficient to allow immunocomplexes to form;

(c) detecting immunocomplexes formed between the protein expression product and antibodies in the body fluid specific for the protein expression product;

(d) repeating steps (a), (b), and (c) on a second body fluid sample taken from the animal subsequent to the initiation of therapy; and

(e) comparing the number of immunocomplexes detected in the first and second body fluid samples, thereby monitoring the effectiveness of the therapy in the animal.

15. The method of claim 14 wherein the protein expression product of an activated oncogene is a protein encoded by an oncogene selected from the group consisting of ras, src, abl, fgr, rel, yes, fes, net, mos, raf, erb B, erb A, fms, neu, ros, kit, sea, sis, myc, myb, fos, ski, jun and ets.

16. The method of claim 14 wherein a reporter group is bound to a second antibody capable of binding to the antibodies, and wherein the step of detecting comprises (a) removing substantially any unbound antibody, (b) adding the second antibody, (c) removing substantially any unbound second antibody, and (d) detecting the presence or absence of the reporter group.

17. The method of claim 16 wherein the second antibody is an anti-human antibody.

18. The method of claim 16 wherein the reporter group is selected from the group consisting of radioisotopes, fluorophores, enzymes, luminescers, and dye particles.

19. The method of claim 14 wherein a reporter group is bound to a molecule capable of binding to the immunocomplexes, and wherein the step of detecting comprises (a) adding the molecule, (b) removing substantially any unbound molecule, and (c) detecting the presence or absence of the reporter group.

20. The method of claim 19 wherein the molecule capable of binding to the immunocomplexes is protein A.

21. The method of claim 19 wherein the reporter group is selected from the group consisting of radioisotopes, fluorophores, enzymes, luminescers, and dye particles.

22. The method of claim 14 wherein a reporter group is bound to the protein expression product, and wherein the step of detecting comprises removing substantially any unbound protein expression product and thereafter detecting the presence or absence of the reporter group.

23. The method of claim 22 wherein the reporter group is selected from the group consisting of radioisotopes, fluorophores, enzymes, luminescers, and dye particles.

24. A method for treating a malignancy in a warm-blooded animal, wherein an activated oncogene or cancer-related gene is associated with the malignancy, comprising the steps of:

(a) isolating T cells from a warm-blooded animal;

(b) incubating the T cells in the presence of at least one protein expression product of an activated oncogene or cancer-related gene associated with the malignancy, such that the T cells proliferate; and

(c) administering to the warm-blooded animal an effective amount of the proliferated T cells.

25. The method of claim 24 wherein the protein expression product of an activated oncogene is a protein encoded by an oncogene selected from the group consisting of ras, src, abl, fgr, rel, yes, fes, net, mos, raf, erb B, erb A, fms, neu, ros, kit, sea, sis, myc, myb, fos, ski, jun and ets.

26. The method of claim 24 wherein the step of incubating the T cells is repeated one or more times.

27. A method for treating a malignancy in a warm-blooded animal, wherein an activated oncogene or cancer-related gene is associated with the malignancy, comprising the steps of:

(a) isolating T cells from a warm-blooded animal;

(b) incubating the T cells in the presence of at least one protein expression product of an activated oncogene or cancer-related gene associated with the malignancy, such that the T cells proliferate;

(c) cloning one or more cells that proliferated in the presence of the protein expression product; and

(d) administering to the warm-blooded animal an effective amount of the cloned T cells.

28. The method of claim 27 wherein the protein expression product of an activated oncogene is a protein encoded by an oncogene selected from the group consisting of ras, src, abl, fgr, rel, yes, fes, net, mos, raf, erb B, erb A, fms, neu, ros, kit, sea, sis, myc, myb, fos, ski, jun and ets.

29. A method for treating a malignancy in a warm-blooded animal, wherein an activated oncogene or cancer-related gene is associated with the malignancy, comprising immunizing the animal with at least one protein expression product of an activated oncogene or cancer-related gene associated with the malignancy.

30. The method of claim 29 wherein the protein expression product of an activated oncogene is a protein encoded by an oncogene selected from the group consisting of ras, src, abl, fgr, rel, yes, fes, net, mos, raf, erb B, erb A, fms, neu, ros, kit, sea, sis, myc, myb, fos, ski, jun and ets.

31. The method of claim 29 wherein the step of immunizing comprises administering the protein expression product repetitively to the animal.

32. An anti-cancer therapeutic composition, comprising T cells proliferated in the presence of at least one protein expression product of an activated oncogene or

cancer-related gene associated with a malignancy, in combination with a physiologically acceptable carrier or diluent.

33. The composition of claim 32 wherein the protein expression product of an activated oncogene is a protein encoded by an oncogene selected from the group consisting of ras, src, abl, fgr, rel, yes, fes, net, mos, raf, erb B, erb A, fms, neu, ros, kit, sea, sis, myc, myb, fos, ski, jun and ets.